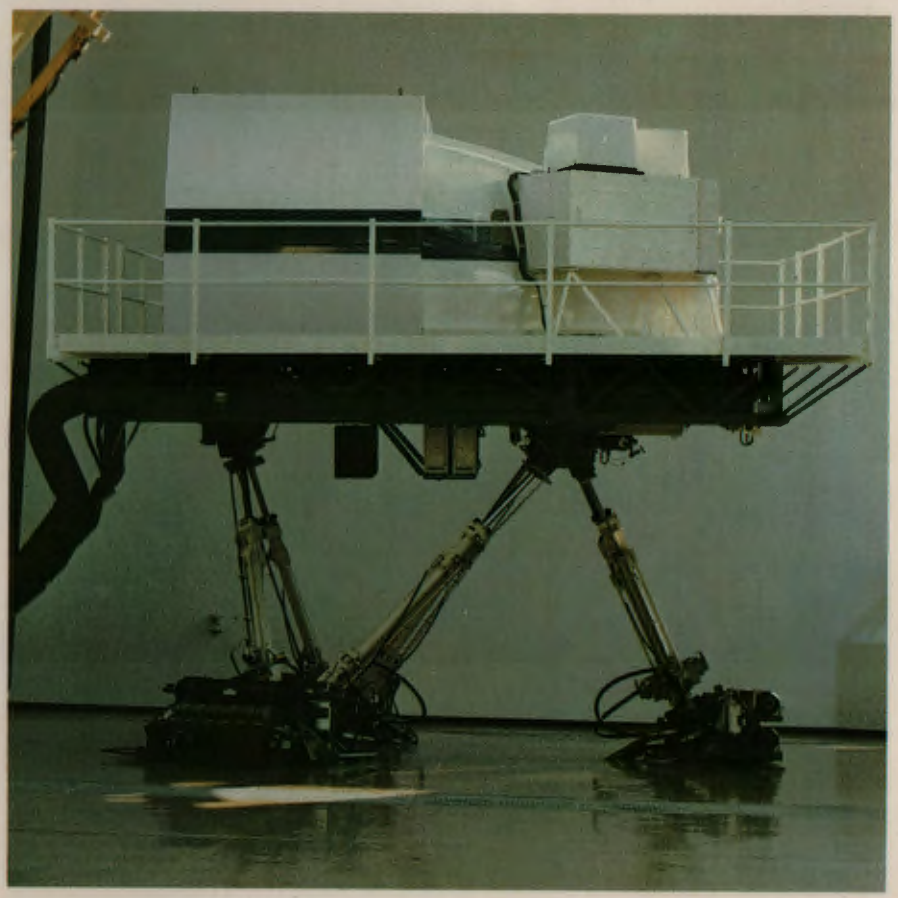


CORPORATE PROFILE

REDIFFUSION
Simulation

Rediffusion Simulation... backed by one of Europe's biggest industrial groups

In a world economic system that displays increasing uncertainty the key to commercial stability lies in size and diversification. And in that context Rediffusion Simulation benefits directly from its membership of the Rediffusion Organisation, an international group which has as its ultimate holding company the giant British Electric Traction Company Limited.

B.E.T. is one of the biggest and certainly one of the most successful European industrial companies with activities ranging from printing and periodical publishing to transportation and open cast mining. In total its assets exceed £700m and with over 200 operating companies it employs almost 60,000 people world-wide.

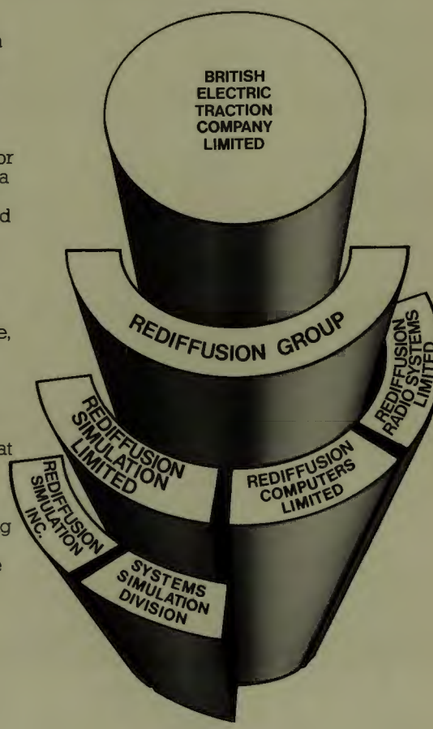
The Rediffusion Group itself is a world-wide organisation with interests in international radio and television broadcasting; television manufacture and rental; industrial communications and high technology engineering.

Rediffusion Simulation employs some 2000 people and is the largest simulation products manufacturer in Europe. Its mainstream business is in the design and manufacture of full scale flight simulators for civil and military aircraft although, through a separate Systems Simulation Division, it is diversifying into broader industrially based markets.

A further subsidiary, Rediffusion Simulation Incorporated is located in the United States to develop and produce the Novoview series of Computer Generated Image systems which, over the past decade, have dominated world simulator visual markets.

Rediffusion Simulation has its administrative and manufacturing base in Crawley, England and, with ancillary design and production facilities in the UK at Brighton and Aylesbury, has shown a consistent pattern of growth and development.

It has done so by successfully combining an entrepreneurial approach to business with a truly global philosophy to penetrate deeply into the world market for its products.



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1. The Boulton and Paul Group is a B.E.T. company specialising in joinery, structural steel and scaffolding for the construction industry.
2. Rediffusion Computers is one of the biggest British owned computer manufacturers. Its latest R-range of business computers has proved an enormous success in both home and overseas markets.
3. Grayston Plant Limited is a major hirer of heavy plant and equipment to the construction industry. The Company also operates a variety of mobile cranes with a lifting capacity up to 600 tons.
4. The administrative and manufacturing base of Rediffusion Simulation is on the Crawley industrial estate in Sussex, England.
5. In the early years Rediffusion's activities were almost entirely devoted to the distribution of radio, building up relay networks both in the UK and overseas.
6. Today Rediffusion has interests in television manufacture, rental and retailing as well as in radio and television broadcasting at home and abroad.
7. Rediffusion Radio Systems supplies a wide range of communications equipment for both civil and military users around the world.
8. Another B.E.T. company, Wembley Stadium Ltd operates the world famous sports, leisure and conference complex.

A company at the forefront of advanced technology flight simulation

Since building the first fully electronic flight simulator in Europe some 30 years ago, Rediffusion Simulation has been at the forefront of what is today a technologically complex and commercially competitive business.

Technologically complex because the operational pressures to minimise flight training in aircraft have combined to demand increasing levels of realism from the simulator engineer.

Commercially competitive because success in the world market place is largely dependent on an ability to integrate the product into a customer's individual flight training strategy.

In both cases Rediffusion has demonstrated a long-standing capability.

A tradition of innovatory engineering spans the company's development, from its work during the early 1950's with the first jet aircraft simulators to very much more recently with the world's first simulator for a commercial helicopter. Nowhere is this better illustrated than in the field of visual simulation where Rediffusion achievements, first with television based equipment and latterly with Novoview Computer Generated Image systems, are legendary.

It's new generation of flight simulators, which have begun to enter operational service, reflect this wealth of experience and expertise. They take account not only of the vast technological development that has taken place within the Company but also of advances, notably in electronics, computing and hydraulics, that have taken place independently.

In doing so the simulator is able to meet all modern criteria in terms of flight training certification as well as providing the equally important operational reliability.

In commercial terms Rediffusion's ability to respond to the demands of the international flight training community is emphasised by a sales list that reads almost as a directory of major world airlines and training agencies.

In total it includes over 300 equipments representing some 70 aircraft types for more than 75 civil and military organisations. It includes repeat orders from customers like Lufthansa, Japan Air Lines and the Boeing Company who, in vastly different areas of the world, are noted for a progressive approach towards civil flight training.

Above all, however, it catalogues a remarkable history of progress that promises an even more remarkable future of achievement.

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1. In the early and mid 1950's Rediffusion Simulation produced flight simulators for some of the world's first jet aircraft.
2. Flight trainers and cockpit procedure trainers to meet specific customer requirements are built at Rediffusion's Aylesbury factory.
3. Novoview SP Series Computer Generated Image visuals provide realistic day/dusk/night out-of-the-window scenes.
4. Rediffusion has a long tradition in military aircraft simulation having supplied equipment to the British Ministry of Defence, the United States Air Force and many other military authorities.
5. Novoview SP1 utilises over 6000 light points and 400 shaded surfaces to produce night/dusk visual scenes. The Novoview series of Computer Generated Image visuals is developed and manufactured by Rediffusion Simulation Incorporated in Arlington, Texas.

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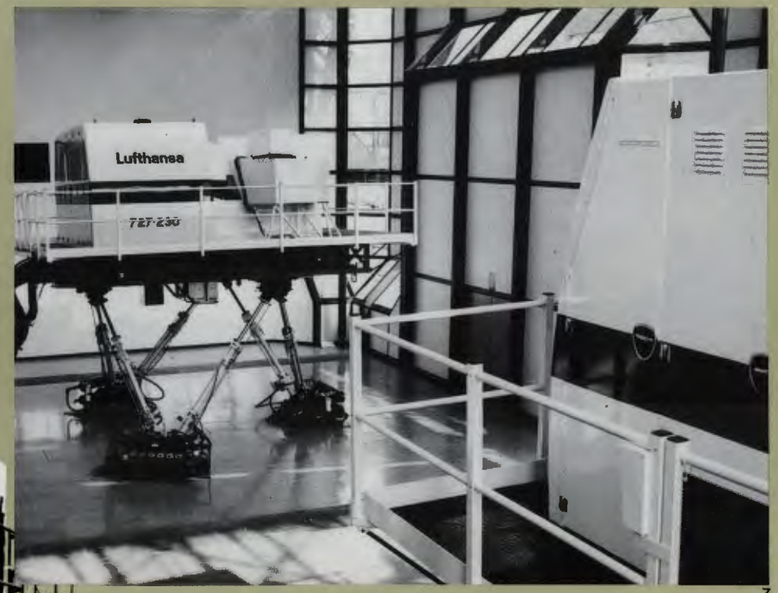
6. The installation of this Rediffusion B747 simulator at Boeing's Seattle facility preceeded an order from the Boeing Company for 10 further equipments. The order includes full simulators, fixed base simulators and maintenance trainers for the new B757 and B767 aircraft.



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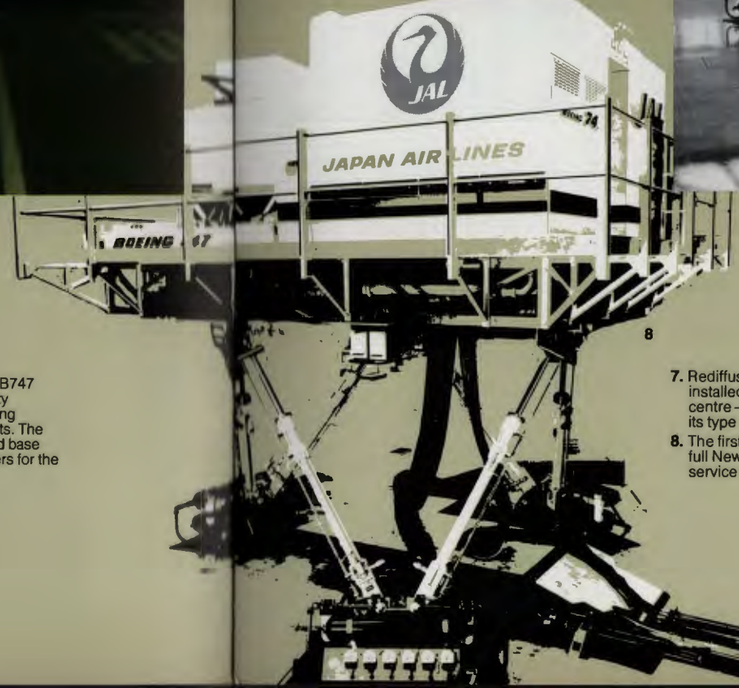

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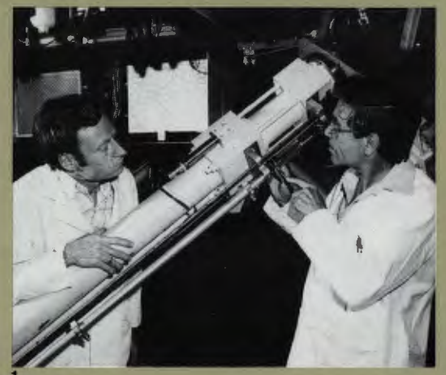
7. Rediffusion B747 and B727 simulators installed at Lufthansa's Frankfurt flight training centre – one of the most advanced centres of its type in Europe.
8. The first Rediffusion simulator to incorporate full New Concept technology has entered service with Japan Air Lines.

An on-going commitment to the technology of training



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In an organisation which has made almost unbelieveable technological strides, a positive commitment to research and development is fundamental to its future growth and prosperity.

In the world of aviation, as aircraft become more complex, and in industry, as processes become automated, the availability of trained personnel will increasingly mark the difference between success and failure.

Training people to such high levels of competence demands a modern approach.

Rediffusion Simulation is committed to the technology of training, both in aviation where simulation is an established technique and in a broad spread of other activities where its merits are only just being realised.

Rediffusion's research and development programmes are ambitious and cover an extremely wide product range. Much of the work centres on a separate facility located in Crawley where major programmes currently include new display techniques for Computer Generated Image visuals and a revolutionary new laser based visual system.

Novoview Computer Generated Image visuals themselves however are the result of a development programme undertaken in the United States by Rediffusion Simulation Incorporated in collaboration with computer graphics specialists Evans and Sutherland Computer Corporation. Today's production versions, SP1 and its latest full daylight derivative, provide ample evidence of just what such programmes can achieve in the space of a single decade.

In such a world, however, it is important to maintain a fine balance between technical innovation and unnecessary complication. Simulators are used by people to train other people and Rediffusion has placed considerable emphasis on human engineering, particularly in the area of instructional facilities.

At the same time, availability of the equipment for training is essential and much work has been carried out to provide automated maintenance diagnosis in the major components of the simulator.

A very comprehensive Product Support Department also exists within the Crawley plant to ensure that flight simulators in the field are fully supported. As well as the provision of spares and specialist engineering services, the department incorporates a training school dedicated to the instruction of customer maintenance personnel. A totally separate Post Design Service Department is located at the Aylesbury plant to undertake updating and major modifications to flight simulators already in operational use.

It is, perhaps, testimony to the integrity with which Rediffusion products are designed, built and supported in the field, that simulators installed up to 20 years ago still provide valuable daily training.

1. A customer training school is dedicated to the instruction of customer maintenance personnel.
2. The Product Support Department based at Crawley provides a 24 hour service for urgent spares and specialist engineering requirements.
3. Novoview Computer Generated Image visual systems are the result of technical collaboration with Evans and Sutherland Computer Corporation. Rediffusion holds equity in the Salt Lake City, Utah based company.
4. Rediffusion has recently built and installed the world's first flight simulator for a commercial helicopter. It is used by British Airways Helicopters to train flight crews in Sikorsky S61-N operations associated with the North Sea oil industry.
5. The latest derivative of the highly successful Novoview SP Series of Computer Generated Image visual systems. Produced in parallel with the SP1 night/dusk product it meets the requirements of those training agencies that demand a full daylight capability.
6. Data base development for Novoview systems is undertaken at Rediffusion Simulation Incorporated in Arlington, Texas.
7. A major Rediffusion research programme currently centres on the use of laser technology to provide a continuous wide angle visual display. A prototype model has already demonstrated the ability to project highly detailed scenes through 180° horizontally by 60° vertically.

A new world of simulation

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1. A ship's machinery control simulator for the Royal Navy's latest type 22 Frigate.
2. Rediffusion Systems Simulation Division headquarters in Manor Royal, Crawley.
3. A Rediffusion simulator is used by the Hong Kong Mass Transit Authority to train drivers in cab operation and systems control.
4. An advanced gas cooled nuclear reactor shut down sequence trainer installed at Hunterston 'B' nuclear power station in Scotland.
5. Industrial simulators can range from part task trainers to full control facilities.
6. Systems Simulation Division has built the world's first offshore platform simulator designed specifically to replicate the pressures, temperatures and flow rates associated with oil and gas production on Conoco's North Sea Murchison facility.
7. The simulator consists of the live control panels, a flexible instructor station and a powerful digital computer.

The economics of large scale production and the application of modern technology have combined in very many industries to make 'on the job' training a redundant expression.

In almost every area of industrial processing, automation and digital control have transformed the traditional role of operator to technician.

In the production and transportation of oil and natural gas the stakes, in terms of both safety and investment, have become so great that accepted training methods are constantly being abandoned.

In power generation and related fields the demands for conservation of fossil fuels balanced against the social consequences of nuclear pollution have placed operators in vital and often unwelcomed positions.

Yet the future and growth of industrialised society, as well as the security of our natural environment, is dependant on these relatively few people performing safely and efficiently.

And that requires confidence in themselves.

Confidence that stems from total familiarisation with the systems of which they have charge and the knowledge that they are capable of identifying and coping with any condition those systems may present.

Simulation as a training tool develops that confidence.

It provides a totally realistic environment in which people can practice and experience the sensations of real time equipment with no threat at all of production loss, personal injury or environmental disaster.

In the world of aviation, simulation is today an essential part of civil and military flight training programmes.

We are about to see a world where that will be so in a wide range of other industries.

The Systems Simulation Division of Rediffusion Simulation is an acknowledged world leader in this field and, has unrivalled experience in the innovatory application of simulation techniques to operator training.

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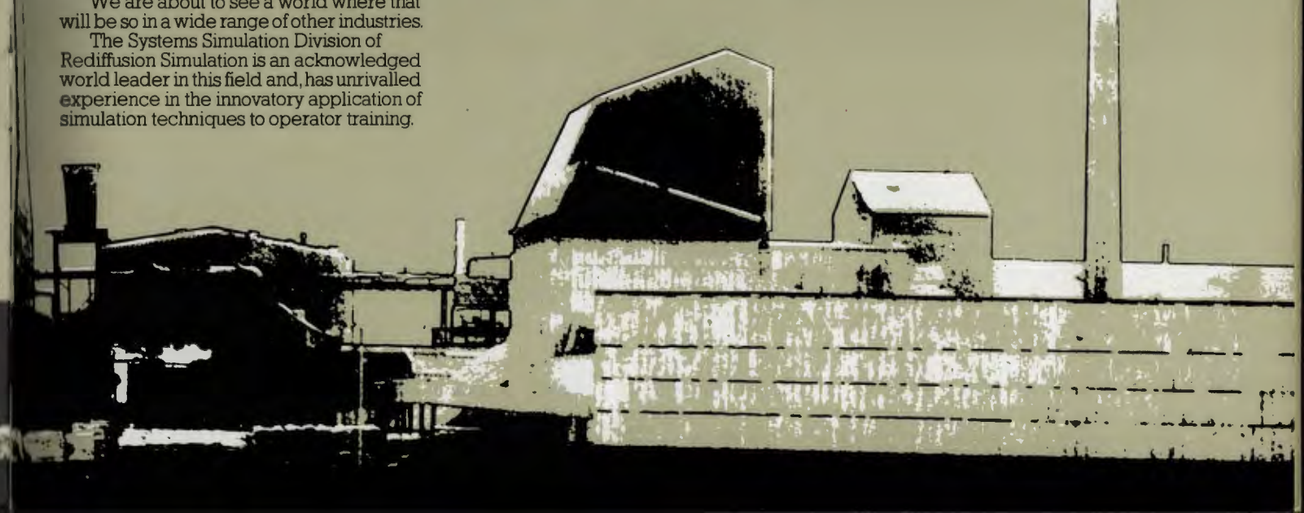

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1. Rediffusion Simulation has more than 75 customers located in over 40 countries throughout the world.
2. Rediffusion engineers supervise site installation of a Boeing 747 simulator at Dallas/Fort Worth, Texas.
3. Rediffusion has built flight simulators for most current jet airliners including all current wide bodied types.
4. Rediffusion Simulation Incorporated is located in Arlington, Texas to both produce Novoview visual systems and support the Company's corporate activities in the important North American market.

A company with a global philosophy

Rediffusion Simulation has succeeded in penetrating the world market for its products by the adoption of a truly global philosophy in terms of its marketing, product support, technical development and commercial activities.

In the world of aviation the company has established a remarkable record with flight simulators installed in every continent of the world and with customers in over 40 countries as far apart as China and Brazil, and the United States and Norway.

Within flight training circles its position as a technological innovator is as well established as its reputation for an entrepreneurial business approach.

At the same time, unlike many similarly placed companies in a world of rapidly changing technology, it has not been afraid to diversify from either traditional geographical or product bases.

Rediffusion Simulation Incorporated for example, located in Texas initially to provide product support for simulators in North America, was expanded during the mid-1970's to capitalise on US based computer graphics technology. Working with Evans and Sutherland it is today the manufacturer of the world's best selling Computer Generated Image simulator visual systems. Also in North America, Rediffusion Simulation (Canada) Limited, provides marketing and field support facilities for the Company's Canadian activity.

Systems Simulation Division, on the other hand, has retained its Crawley location but moved away from its traditional radar based markets to develop simulation products to meet the demands of a new and infinitely diverse range of industries.

Perhaps the most significant aspect of the Rediffusion philosophy however extends to its employees. In every field of activity from sales to engineering there is a genuine desire to understand the individual training problems of its customers and, thereby contribute to their solution.

It is this desire, together with a tremendous pride in the product and an enviable industrial relations record, that has placed Rediffusion at the forefront of the simulator products business.

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REDIFFUSION
Simulation

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